THE GOVERNOR'S SCHOOL for SCIENCE AND TECHNOLOGY

Computational Physics

Syllabus

2022-2023

Course Description

Teaches fundamental principles of physics and scientific programming in Python.

PHY 201 - General College Physics I [4 credits, VPCC dual enrolled]
PHY 202 - General College Physics II [4 credits, VPCC dual enrolled]

Prerequisite(s): MTH 115 or MTH 163 or equivalent

Instructor

- Instructor : Dr. Bedir
- Classroom : A41
- Office : A38
- Email : islam.bedir@nhrec.org
- Phone : 757-704-4282
- Twitter : @GsstPhysics
- Office Hours : On Fridays and by appointment
- Online Help : Email, Zoom, Canvas discussion forums

Textbook

- College Physics: A Strategic Approach; 3rd Edition; Knight, Jones, Field

Supplementary Books and Materials

- Pearson Mastering Physics website & e-Text
- Einstein: His Life and Universe [ISBN 0743264746]

Extracurricular Activities

- PyClub
- Girls Who Code Club
- Physics Club

Method of Instruction

- The course content will be taught through a series of lectures, hands-on demonstrations, physics and coding assignments, quizzes, tests, projects, and laboratories.

Homework Assignments & Due Dates

There will be multiple assignments: physics, programming, and lab reports. The physics problems will be assigned through an online platform called ***Mastering Physics***. All dates in which assignments and lab reports are due will be posted online (in Canvas). Student may get no credit for late homework or a missed test. Make-up assessments are available at the discretion of the instructor. Instructor may give a make-up assessment to students with valid and reasonable excuses.

Assessments

- Formal : There will be quizzes and tests
- Informal : There might be (clicker) questions at the beginning and/or throughout the class

Laboratory

Laboratory sessions will be used to reinforce concepts covered in the lecture as well as to give the student experience in data collection, analysis, and report presentation. The laboratory skills students are expected to learn and develop are:

- Setting up an apparatus and making measurements
- Explaining the physical situation and analyzing the data
- Figuring the sources of experimental error and finding ways to handle it
- Utilizing a spreadsheet to graph and do curve fitting
- Collaborating effectively in a group
- Reporting and discussing experimental observations

Grading

Quizzes, tests, homework, and laboratory grades are weighted as follows to determine quarterly grades:

- Quizzes 10%
- Laboratory 15%
- Projects 15%
- Assignments 30%
- Tests 30%

Course grades will be assigned using the following scale as a guide:
90-100% → A, 80-89% → B, 70-79% → C, 60-69% → D, 0-59% → F.
Grading Procedure

Expectations: In the Classroom

Students are expected to

- Be seated and ready to learn when the bell rings
- To know that the class is dismissed by the teacher, not the bell
- Be actively focused on educational goals
- Be on task
- Be respectful

Expectations: Outside the Classroom

Students are expected to

- Study and take notes of the textbook
- Participate in online discussions

- Peer review or help others through discussions

Dual Enrollment in Physics 201 and 202

The decision to dual-enroll in a course requires careful consideration. You have options, as you can see from the DE module on Faculty Advising Canvas course. You may wish to contact your top choice colleges to ask what the impact of taking a dual-enrollment course might be for your goals, particularly if you do not perform to your expectations in the course. Please be aware that you are generating a permanent college transcript with all the courses for which you are dual-enrolled. You can also use the dual-enrollment student guide from Transfer Virginia to help you determine the potential impact.

If you choose to dual-enroll, you must monitor your course grade. If you find you are not earning grades you want to have on your permanent college transcript, you may consider dropping the dual-enrollment portion prior to the Add/Drop date for the term of the course, or to withdraw from the dual-enrollment portion prior to the Withdrawal date. If you choose to withdraw from dual enrollment for the class, you will still earn high school credit and can plan to be well-prepared for the class in college. Dropping will have no record on your transcript, while withdrawal will leave a note on your college transcript indicating you withdrew, but no grade will be recorded on your college transcript. You can request a decline or withdrawal form from me or from Mrs. Yee.

No matter what you choose to do, I will respect your wishes. I want to work with you to support your learning, but I cannot learn the information for you; you will have to invest effort in the course in order to succeed. This may require you to learn new learning strategies that you haven't used in the past. I will do my utmost to support your personal learning in the class and encourage you to pursue your goals.